ON THE

MEDICINAL PROPERTIES

OF THE

Mineral Waters

OF

VICHY.

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LONDON:

PUBLISHED BY AND FOR THE

VICHY WATERS COMPANY,

27, MARGARET STREET, CAVENDISH SQUARE.

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PREFACE.

The value of natural mineral waters for the maintenance of health when used as a daily beverage, and for its restoration in a variety of disorders, either alone or as an adjunct to appropriate medical treatment, is perhaps less appreciated in Great Britain than in many countries on the Continent. Since, however, the practice of resorting to the Continental mineral springs has recently become very general, particularly among the richer classes of Englishmen, it must be interesting to the Profession to be made acquainted with the nature and properties of such waters. The Waters of Vichy, which have long enjoyed a very high reputation as hygienic and remedial agents, are now more than ever in demand in this country. They are capable of being transported to any distance, and, when bottled at the springs, retain their properties for any length of time; and they are pre-eminently useful in many disorders very prevalent in Great Britain. These circumstances, so certain to produce an ever-increasing demand for them, have induced the Company to which the Imperial Government of France has conceded the custody of the springs and the privilege of vending the waters, to form an establishment in London, for the readier supply of the numerous families who recognise their value. And as it is deemed certain that professional men will avail themselves of these remedial agents, so soon as they are acquainted with their nature and properties, it is thought that the following brief account will be acceptable.

F. Brunel,

DIRECTOR OF THE VICHY WATERS COMPANY.

27, Margaret-street, Cavendish-square.

*** The Company prepare the SALTS of the *Vichy Waters* by Evaporation, and export them in bottles, suitable for preparing the waters as a beverage or for BATHS.

They also prepare PASTILS or LOZENGES, containing all the saline constituents of the Viehy Waters.

These *Salts* and *Pastils* may also be obtained at 27, *Margaret Street, Cavendish Square.*

*** INFORMATION RESPECTING VICHY, ITS MINERAL WATERS, BATHS, HOTELS, LODGINGS, THE ROUTE FOR TRAVELLERS PROCEEDING TO VICHY, &e. &e., MAY BE OBTAINED AT

27, MARGARET STREET, CAVENDISH SQUARE.

THE

PRODUCTS OF THE VICHY WATERS,

as prepared by the Viehy Waters Company, were awarded a first-class Medal by the International MEDICAL Jury, at the Universal Exhibition, in Paris, of 1855.

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I.

Vichy is a small town of Franee, situated in the department of Allier, twenty kilomètres* from Gannat, sixty from Moulins, three hundred and eighty from Paris, at the junction of the high road from Moulins to Nismes, and that from Gannat to Vichy.

It is placed in a small valley on the right bank of the River Allier, surrounded by hills, whieh form an amphitheatre, eovered with vines, fruit-trees, and cultivated fields, presenting a pleasing and animated pieture. The air is pure, the elimate mild, and the approaehes to the valley easy.

These eireumstanees, eombined with the undoubted efficaey of its mineral waters, which afford relief annually

* 20 kilomètres = $13\frac{1}{2}$ miles.

to great numbers of invalids, eause this watering-plaee to be the most frequented, not only of Franee, but of Europe.

The mineral waters of Viehy have been known and resorted to from time immemorial. Tradition refers their diseovery to the time of the Romans.

The town of Viehy is divided into two parts—the old town and the new. The more aneient is nearest to the river, eomposed of houses badly built and in narrow streets: the new is separated from the old town by a long planted avenue, and is distinguished by the magnitude and eleganee of its buildings, whieh are immense hotels for the aecommodation of patients. At the extremity of the new town is ereeted the range of buildings for the reception of the thermal waters, eommeneed in 1714, by the munifieenee of Mesdames Vietorine and Adelaide, aunts of Louis XVI., and finished in 1829. It offers, by its eonstruetion, its vast proportions, the admirable arrangement of its baths, and its magnifieent saloons, resourees for every elass of persons who frequent Viehy for the re-establishment of their health.

The season for using the waters begins on the 15th of May, and ends on the 15th of September.

There is a Physieian Inspeetor and two Physieians Deputy-Inspeetors, who eontrol the establishment, and render their serviees to the patients.

II.

The thermal establishment was constructed on a scale calculated to furnish forty-five to fifty thousand baths in the season; but the influx of patients became so great, that this number of baths and the amount of water that could be supplied proved altogether insufficient. The Government not being able to meet the urgent requirements of the patients who frequent Vichy, devolved upon a company in 1853 for thirty-three years, the task of augmenting the works to increase the produce of the springs, and the preservation of the waters, upon conditions, clearly expressed in a charter, which should at once secure the interests of the company as a commercial undertaking, and the benefit of the public in the use of the waters.

To increase the number of baths, to procure the mineral waters in sufficient quantities to meet the present actual demand for them, and to provide for future exigencies which may arise from their properties and value becoming more widely known, have occupied the attention and have been the primary care of the *concessionaires*.

There was never any deficiency in the amount of waters, but simply in the means of collecting and appropriating them; and this has now been supplied in reference to the three principal springs. The works, carried on by M. François, chief engineer, after meeting considerable

difficulties, have been entirely successful; and the quantity of these mineral waters now furnished for medicinal purposes, amounts to 800,000 litres (or quarts) daily.

III.

The springs of Vichy, as well as the jets of *Hauterive* and *des Dames*, have a common origin. They all proceed from a lagune, or basin, resting upon the primitive rocks which underlie the valley of Allier. They reach the surface, after traversing the secondary and tertiary strata, by natural fissures, or others formed artificially.

All the waters are extremely alkaline, very limpid, and in consequence of the presence of a considerable amount of carbonic acid, have a pleasant, grateful flavour. In some of the springs, the carbonic acid gas escapes so rapidly as to cause a lively ebullition.

The Célestins has a piquant, acid taste. In some there exists a slight smell of sulphuretted hydrogen, which, however, is very fugitive, and is inappreciable by chemical tests. This odour disappears very quickly at a small distance from the springs.

IV.

The following Table represents the Gaseous and Saline Constituents contained in one quart of the several

Waters of Vichy, calculated from the recent analyses of M. Bouquet, in grammes (1 gramme = 15·434 grains.)

Constituents of the Vichy Waters.	Grande Grille.	Hôpital.	Célestins.	Hauterive.	Des Dames.
Carbonic Acid	0·908	1·067	1·299	2·183	1·908
Bicarbonate of Soda	4·883	5·029	4·101	4·687	4·016
" of Potass	0·352	0·440	0·231	0·189	0·189
" of Magnesia	0 303	0 200	0·554	0·501	0·425
" of Strontia	0·003	0 005	0·005	0·003	0·003
" of Lime	0·434	0 570	0·669	0·432	0·604
" of Protoxide of Iron	0·004	0·004	0·004	0·017	0·026
" of Protoxide of Manganese	A trace.	A trace.	A trace.	A trace.	A trace.
Sulphate of Soda	0·291	0·291	0·314	0·291	0·250
Phosphate of Soda	0·130	0·046	A trace.	0·046	A trace,
Arseniate of Soda	0·002	0·002	0·003	0·002	0·003
Borate of Soda	A trace.	A trace.	A trace.	A trace.	A trace.
Chloride of Sodium	0·534	0·518	0·550	0·534	0·355
Silicia	0·070	0·050	0·065	0·071	0·032
Organic Matter, Bituminous	A trace.	A trace.	A trace.	A trace.	A trace.
	7·914	8·222	7·865	8·946	7·811

V.

The celebrity and fashion enjoyed by the waters of Vichy for so long a period, are justified by the aetivity of their mineral constituents and the efficaey of their medicinal properties. Readily absorbed, and conveyed by the circulation into every organ and every tissue, they produee more or less excitement, and a salutary influence in a great variety of disorders. But while they have this common nature, it must not be concluded that the effects of all mineral waters are therefore identical. On the eontrary, each has its own specific action, depending upon the nature of the prineipal elements held in solution; and one can no more be properly substituted for another, than purgative medicines can be used in place of tonies or astringents, or wine replaeed by soda.

An examination of the foregoing table will at once serve to show that even the several waters of Vichy differ from eaeh other in the proportionate amount of certain very energetic constituents, and consequently they vary in their therapeutic properties. The experience of physicians established this faet long before the analytical chemists had ascertained the cause.

VI.

It is impossible, in the present state of science, to deny the influence of chemieal agents upon the animal economy. It is an established truth, that the principal

phenomena of life—respiration, the evolution of animal heat, digestion, assimilation, and secretion—involve an uninterrupted course of chemical reactions. Such agents form essential constituents of all immediate organic substances, and are as necessary to the functions as oxygen is to respiration.

Among these the alkalies are recognised as indispensable to the functions of digestion and secretion. They contribute to maintain the blood in the degree of viscidity necessary to admit of the transpositions termed endosmosis and exosmosis, and the various compositions and decompositions which constantly proceed during life. They mediate the union of oxygen with the saccharine and amylaceous matters of the food, and enable these to perform their part in the processes of respiration, and maintenance of animal heat. The alkalies, also, are essential constituents of bile: they maintain its fluidity; if not present in sufficient quantity, bile becomes too viscid, forms concretions and bile-stones. They saponify and render fatty matters soluble, and, taking a part in the functions of the lower bowels, facilitate the excretions. In fact, they are necessary agents in every act of nutrition and assimilation.

VII.

Mineral waters charged with alkalies are those which in an especial manner serve to establish the condition

in the living body essential to health. The springs of Vichy rank pre-eminently among the natural alkaline waters. They contain the bicarbonate of soda in so large a proportion, that this constituent must be considered their chief element, and the one which determines their therapeutic efficacy: the other saline constituents exist only in minute quantities. Nevertheless, artificial soda-water is neither so congenial to the stomach nor so prompt and energetic in its action as the natural. This depends partly upon the condition of the soda salt, and partly upon its combinations with the other constituents, which cannot be imitated artificially. And there is abundant evidence to establish the fact, that the waters of Vichy have a specific and proper action, together with the common properties of alkalies.

Under their use, the secretions which commonly exhibit an acid secretion—as the urine and perspiration—quickly become alkaline. A few glasses of the waters, or a bath or two, will in most persons produce this effect. In larger quantities it is sure to follow, and to be maintained during their use. The state of the secretions expresses what is passing in the whole economy: when the urine is rendered alkaline, the blood and juices of the flesh are also materially affected.

But the alkaline state of the urine thus indicated must not be confounded with that produced by certain diseases or poisons. Soda is not a foreign element in

the economy: on the contrary, it is one of the principles essential to the living system, and must be present in sufficient quantities to maintain the actions and reactions which constitute the equilibrium of health. If present in excess, the excess is thrown off in the secretions; if in insufficient amount, serious disorders must ensue. It is only after supplying the natural requirements of the system for soda and its associated saline matters, that the Vichy Waters render the urine alkaline: and this arises from the presence of undecomposed bicarbonate.

VIII.

It has often been said, and with reason, that the use of alkalies may be carried too far. Doubtless it is necessary to use a proper discrimination, to administer them only to such persons and in such disorders as they are appropriate for. Certain pathological conditions forbid their employment, and certain constitutions suffer from their use. This is precisely the office of the medical man to discriminate and determine; as a general rule it may be justly alleged, that the use of the Vichy Waters is advisable to all persons who live freely, taking a full amount of animal food, with wines or other fermented drinks, with insufficient muscular exercise, and little perspiration. Such persons, especially the inhabitants of cities breathing an impure atmosphere, always suffer from disorders arising from the predomi-

nanee of acids in the system, and consequently Gout, Rheumatism, Gravel, Biliousness, and general Plethora; and all these diseases are remedied by alkaline medicines and a suitable regimen. Whilst, on the other hand, for persons who take a spare, insufficient, or vegetable diet, abundant exereise in the fresh air of the eountry, who perspire freely, and are subject to fevers and low conditions of the system, alkalies are eontra-indicated.

IX.

The waters of Vichy, by rendering the blood alkaline, give it greater fluidity, and make it less coagulable; they loosen the albumen and fibrine, and cause them to become more soluble. The blood thus flows more freely through the vessels, and acquires the power of dissolving the two principal elements which form the basis of ehronic engorgement of the viscera; hence these waters are resolvent, antiplastic, and deobstruent.

It is important to distinguish the chemical and tonic action of these waters. Their tonic and exciting qualities render them inapplicable in certain inflammatory diseases and fevers. But in chronic disorders requiring the circulation to be excited, the secretions to be accelerated, and the functions of digestion and assimilation regulated, they are appropriate and highly beneficial.

By virtue of their chemical properties they act most favourably in all cases of congestion and obstructions of

the viscera, disorders of the liver, biliary calculi, gravel, urinary calculi, irritation of the bladder or chronic cystitis, gout, rheumatism, &c.; but they require to be used cautiously by anæmic patients and certain cachectic habits characterized by too great looseness or weakness of the blood. Nevertheless, they greatly aid in re-establishing health in scrofula, tuberculosis, and albuminuria.

The chalybeate elements in the *Source des Dames* make this water very successful in chlorosis, amenorrhœa, &c. In fact, the composition and mode of action of the Vichy Waters are so complex, that it is difficult to assign the limits to their therapeutic value.

X.

A reference to the analysis of the Vichy Waters at page 9, will show that while they agree as to the powerful constituent which gives them a common property, there is still sufficient difference in the other saline elements to explain the results of long experience, namely, that the several springs have each its peculiar and special therapeutic application and value.

1. Grande Grille.

The water of this spring is more especially recommended in lymphatic habits, disorders of the alimentary

canal, congestion of the liver, enlargement of the spleen, visceral obstructions, biliary calculi, gravel, &c.

2. Hôpital.

This closely resembles the *Grande Grille*, but it is considered to be less exciting, and therefore more adapted to delicate persons, with nervous susceptibility, or disposed to pulmonary congestion or hæmorrhage. It is used most for indigestion, want of appetite, oppression or weight at the stomach after eating; and for females in disorders of the uterus or ovaries. The water of this spring contains the organic principle known under the designation *baragine*.

3. Celestins

Is most prescribed in affections of the kidneys or bladder, gravel, urinary calculi, gout, and diabetes.

4. Hauterive

Is employed for the same cases as the Célestins, having the same special properties; but it has this important advantage, *namely*, it is better adapted for transport, from being richer in carbonic acid.

The water of this spring, as a general rule, is the best to be adopted by those patients who are unable to visit the springs of Vichy. Its agreeable taste and congeniality to the stomach recommend this variety no

less than its therapeutic properties. Persons, therefore, not able to proceed to Vichy, but desirous of benefiting by these waters, who suffer from *gout, gravel, affections of the kidneys or bladder, urinary calculi, diabetes,* will do well to adopt the variety *Hauterive.*

5. Source des Dames.

This spring is characterized by the presence of a considerable proportion of chalybeate principles with the soda and the other saline constituents. It is, therefore, more applicable in impoverishment of the blood, pallor of the skin, chlorosis, protracted convalescence after debilitating diseases, anæmia.

It is also appropriate for patients of a nervous temperament, for females subject to hysteria, or excitable, requiring remedies at once soothing and tonic.

These differences in the constitution, and effects on the constitution of the several Vichy Waters, make it of primary importance that they should be used under the direction and advice of medical men.

It has been much discussed, whether patients who are taking the Vichy Waters should be restricted to any precise plan of diet, whether they should abstain from wine, milk, acids, fruits, &c. The simple truth is, these waters may form the beverage of patients under almost any variety of diet which their cases may require. They correct the acidity of wines and other fermented

liquors, and are by no means uncongenial with the use of acid fruits. The compounds of the vegetable acids with the soda readily again decompose in the system, and the urine becomes as readily alkaline under the use of the waters when associated with wine, as when abstinence from wine is advisable.

XI.

Another question which has been mooted is, whether the Vichy Waters can be advantageously transported to distances; and experience has demonstrated that, when bottled at the springs, they retain their properties unimpaired for years. The kinds generally exported, and which can be most strongly recommended for use in places remote from Vichy, are the following:*—

HAUTERIVE.
SOURCE DES DAMES.
CELESTINS.
HÔPITAL.
GRANDE GRILLE.

In losing their natural high temperature these waters undergo no decomposition, and during long land jour-

* The Vichy Waters Company keep a large quantity of each of these on sale at their Dépôt, 27, MARGARET STREET, CAVENDISH SQUARE, where the other varieties may also be obtained, if for any reason they are preferred.

neys or voyages suffer no alteration; the use of them in many countries has produced the happiest effects, and as an adjunct to medical treatment they cannot be too widely known, since they furnish the medical profession with aid in the treatment of diseases which is invaluable, and for which no substitute can be found.

XII.

Several physicians, and especially Dr. Petit, Dr. Barthez, Dr. Durand-Fardel, have written excellent monographs, which establish the sovereign efficacy of the Vichy Waters in affections of the alimentary canal, diseases of the liver, biliary calculi, and abdominal congestions, &c., dissipating all doubts and prejudices which have arisen on the subject of the Vichy Water in the treatment of gout, rheumatism, gravel, urinary calculi, albuminuria, and diabetes.

It is worthy of observation, that the experience of these and other eminent physicians enabled them distinctly to recognise not only the general and common properties of these waters, but also the special and appropriate effects of each one separately, before the peculiarities of their chemical elements could be determined. This assuredly renders their authority the more trustworthy on every point they have advanced. A few remarks on the special application of the Vichy Waters, in the treatment of

diseases, derived from these writers, will doubtless be acceptable to the Profession in England.

The diseases for which Vichy Waters are successfully prescribed, are—1. Dyspepsia, &c.; 2. Torpid Liver and Biliary Obstructions; 3. Uric Acid Urinary Deposits; 4. Gout and Rheumatism; 5. Albuminuria; 6. Diabetes; 7. Obesity; 8. Chronic Cystitis; 9. Anæmia and Chlorosis; 10. Cachexia.

XIII.

Dyspepsia; Habitual Constipations, and Disorders of the Alimentary Canal.

The employment of alkalies in dyspepsia, painful or sensitive states of the stomach, and disorders of the lower bowels, is quite familiar to the profession. But it will be found that the natural alkaline waters of Vichy produce a far more favourable effect than the use of the crude alkalies or alkaline carbonates. The state in which the soda exists in these waters, associated as it is with other saline constituents, make them far preferable. Indeed they agree with the stomach, and remedy such disorders when ordinary alkaline remedies fail: the testimony of very numerous physicians has been borne to this fact. In habitual costiveness they are a safe and pleasant remedy. By being made part of the dietetic plan of treatment, they will be found a most valuable adjunct to whatever medicines may be prescribed.

XIV.

Disorders of the Liver; Jaundice; Gall-stones, &c.

The most reeent researches of chemists have demonstrated that the bile in its healthy condition is a eompound, consisting of eertain organie acids in eombination with soda. In disorders affeeting the primary processes of digestion and assimilation, the liver seeretes a fluid eontaining an increased proportion of the aeid elements. It is then more viscid and earbonaceous, flows sluggishly, and often forms eoncretions—gall-stones. The free use of the Viehy Waters, by supplying soda and other salines in the form in which they most readily pass into organic eombinations, affords a wide range of benefits in such affections of the biliary system. They thin the bile, and impart to it a solvent property, henee removing obstructions or eongestions of the liver.

XV.

Uric Acid Diathesis.

A tendency to the formation of urie aeid in the system is a very eommon oeeurrence, and it is the root of many diseases. This aeid produces irritation of the kidneys and bladder, and is well known as a deposit in the urine, of a red or pink eolour, and gritty.

The pains in the loins and general disturbanee of

health arising from gravel, are too characteristic not to be easily recognised.

In such conditions of the system, the Vichy Waters are the most powerful and certain remedy. They certainly prevent the formation of uric acid calculi; and in many cases, when freely taken, they cause the disintegration and expulsion by urine of such calculi when actually formed. This effect they produce by rendering the urine permanently alkaline; and thus it becomes a solvent for the urates, or for the matter which interposes in the formation of the calculi. The state of the digestive and assimilating system on which the uric acid primarily depends, is effectually and permanently cured by their use.

XVI.

Gout and Rheumatism.

These diseases stand in a very close relation to gravel and urinary calculi. They have a common origin and a common element; uric acid and its compounds accompany them. They are developed under the influence of the same causes, excess of nutritious food, intemperance, sedentary habits, &c. Whatever opinions may be held by the most eminent practitioners respecting the nature of gout, their testimony is unanimous that the waters of Vichy, aided by proper regimen, have a most advantageous effect in the treatment of this dis-

ease. Even in cases where the disease is dependent upon a powerful constitutional and hereditary cause, they almost universally diminish the frequency, severity, and length of its attacks, and avert the evils which flow from it. They may not always disperse the nodes and other concretions deposited about the joints, but they generally remove the rigidity of the ligaments and muscular contractions. If prudence counsels the suspension of the treatment on the immediate approach, or during an attack, it has been well established that when a fit is experienced during the time the Vichy Waters are taken, the pain is less severe, and lasts a shorter time than in other paroxysms.

Gouty persons bear the waters in a remarkable manner. They usually take the most powerful—that of the Source Célestins—in considerable quantities, without inconvenience.

In Chronic Rheumatism and Rheumatic Gout, experience has demonstrated the efficacy of these waters, and it is worthy of observation, that they contain an appreciable amount of potass. But, it cannot be too often repeated that it is the form and association under which the several elements exist in mineral waters, which determine their therapeutic value.

It is particularly important for such persons as suffer from Gout or Rheumatism to continue the use of the waters after leaving Vichy, or they soon lose the benefits

they have derived from its waters. In order to derive the full benefit from them they should be continued for two or three years, according to the requirements of the case.

XVII.

Albuminuria, or Bright's Disease.

In reference to this disease we must notice some practical observations made within the last few years.

The passage of albumen in the urine is always accompanied by great impoverishment of the blood, disordered circulation, and partial or general dropsy. Whether the depravation of the fluids in this disease be primary or secondary, whether it precedes or follows the disease in the kidneys, it constitutes the principal danger, a danger which calls for the immediate employment of all the resources of art. Clinical experience has demonstrated that albuminuria at its earliest stage, and unassociated with profound organic changes, offers the best chance for remedies. The only method of treatment which can arrest it is a highly tonic and strengthening regimen, full animal diet, with generous wines, and alcoholic drinks, with bitters, chalybeates, and mineral waters,—means, in short, calculated to reanimate the digestive organs, regenerate the albuminous elements, and reconstitute the normal state of the fluids.

XVIII.

Diabetes.

In this disease, usually regarded as hopeless, the free use of the Vichy Waters has, according to the evidence of the medical men who most prescribe them, often effected a perfect cure; and in all cases it arrests or retards the progress of the disease. When given at an early stage, and before the constitutional disturbance has proceeded far, or for a long time, Vichy Waters have been regarded as a specific. They would appear to be extremely worthy of the attention of the profession in this country, whose means of treatment for this disease are so scanty.

XIX.

Obesity.

It is not perhaps often that medical men are called upon to treat an undue accumulation of fat as a disease; nevertheless, sometimes their advice is asked when the abdomen particularly is loaded with fat, and pendulous.

By correcting the disorders of digestion, upon which its formation depends, and by promoting the resolution of fat into such forms as are fitted to escape through the secreting organs, the Vichy Waters are the safest and most agreeable remedy. Taken as a daily beverage by such persons, they remove the redundant fat, without

impairing the appetite, or disturbing the healthy condition of other organs.

XX.

In irritable states of the Bladder, or when the urine is loaded with mucus (Chronic Cystitis), a course of the Vichy Waters usually effects a cure.

XXI.

Anæmia and Chlorosis.

There is no fact respecting the remedial use of Vichy Waters more certain than their curative effects in these conditions of the system, which occur most frequently in young persons. The water of the *Source des Dames*, which, on referring to the tables, will be seen to contain the largest amount of carbonate of protoxide of iron, is the variety to be recommended in such cases. As it is contained in this water, the iron is far more energetic, more readily assimilated, and passes more readily into the blood, than when administered in the form of any of its salts.

XXII.

Cachexia.

In many of the vague disorders of health coming under this general designation, particularly when arising

from over-exertion of the mental faculties, from errors of diet, deficient exercise, or whatever serves to produce a disordered state of the blood or flesh juices, a course of the Vichy Waters will be found efficient. Highly restorative and invigorating in themselves, they may be associated with a variety of tonic remedies with great advantage.

